DOCUMENT RESUME

ED 317 679 CE 054 095

AUTHOR Philippi, Jorie W.
TITLE Facilitating the Flow of Information between the Business and Education Communities. Background Paper No. 12.
SPONS AGENCY Department of Labor, Washington, DC. Commission on Workforce Quality and Labor Market Efficiency.
PUB DATE Sep 89
CONTRACT 99-9-3372-75-014-04
NOTE 55p.; In "Investing in People: A Strategy to Address America's Workforce Crisis" (CE 054 080).
PUB TYPE Information Analyses (070)

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS Adult Education; Communication (Thought Transfer); *Educational Policy; *Education Work Relationship; Information Transfer; Job Training; *Labor Force Development; *Outcomes of Education; Postsecondary Education; *School Business Relationship; Secondary Education; Vocational Education
IDENTIFIERS *Workplace Literacy

ABSTRACT

The imminent shortage of qualified workers, resulting from demographic changes and technological upgrades, has caused educators and employers to recognize the need to improve and increase their communication in order to achieve their interrelated goals. From the late 1800s, business has exerted influence on the nation's public education system. Employers have had input into its structure, operations, and regulatory policies on local and national levels. An intensified era of business education activity beginning in the 1970s has come about as the result of changes in federal employment and training policy that gave employers a larger role in local program planning. The business community often provides educators with data on projected vacancies and facilitates academic achievement through participation in school-business collaboratives that focus on school-to-work transition assistance. Recently, workplace literacy programs have emerged. Various models of business-education collaboration exist, including examples from other countries. Improvements in these collaborative efforts would require educators to recast their role as receivers of services and resources from business to one of more active participation in translating workplace requirements into relevant curricula. Recommendations resulting from a literature and research review are that educators should be encouraged to initiate a more proactive role in meeting the needs of the business community, that Private Industry Councils be given a larger, regulatory role in facilitating partnerships and communication guidelines, and that more research be conducted to identify the appropriate facilitating role for the Federal Government. (41 references) (CML)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED317679

12. FACILITATING THE FLOW OF INFORMATION BETWEEN THE BUSINESS AND EDUCATION COMMUNITIES

Jorie W. Philippi

Performance Plus Literacy Consultants
(formerly with Public/Private Ventures)

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

CE054095

This project was funded under Purchase Order No. 99-9-3372-75-014-04 from the U.S. Department of Labor, Commission on Workforce Quality and Labor Market Efficiency. Opinions stated in this document do not necessarily represent the official position or policy of the U.S. Department of Labor, Commission on Workforce Quality and Labor Market Efficiency.

BEST COPY AVAILABLE

Facilitating the Flow of Information Between the Business and Education Communities

Jorie W. Philippi

There is a growing concern over the gap between the educational skill achievements of America's youth and workers, and those required for entry and retention in the labor force. Changing demographics, along with the constant restructuring and technological upgrades that keep American business competitive, have resulted in the imminent danger of a national workforce shortfall. Increasingly, employers are facing the reality of not having enough qualified workers to fill available positions. Where once employers had a surplus of qualified applicants and could replace a worker whose job performance or ability to be retrained was inadequate because of low basic skills, they now find that qualified, retainable entry-level and promotable workers are at a premium.

At the same time, school systems, whose primary job is transmitting those skills necessary for functioning in our society, are reporting the effects of shifting student populations-- namely, overall decreases in enrollment, lowered levels of skill attainment by students, and persistently high dropout rates (Committee for Economic Development, 1987; U.S. Conference of Mayors, 1988). Despite concerted attempts over the last decade to improve school performance, significant change has remained a slow and somewhat elusive process. Youth continues to drop out-- at very high rates in many

urban areas; of those who do graduate, a disturbingly high proportion still do not come to jobs with the requisite math and reading skills. Thus, each year large numbers of youth are leaving the school environment, and entering the labor market, unprepared to carry out their jobs.

Up to now these youth have taken jobs which did not require much literacy, but which still provided sufficient wages for self-support. They comprise the 30 million members of our current workforce who are under-skilled, unable to be retrained because of their present low level of basic skills, and in danger of being displaced (Dole, 1989). At the same time, the low-skilled jobs which have been available to the bottom of the workforce now represent less than 40 per cent of all new jobs and are steadily disappearing. Companies report that only one out of five high school graduates who apply for a position is functioning at a basic skills level acceptable for entry-level hiring, and of those hired, only one out of three is retained for longer than 90 days. Turnover rates for entry-level positions are often quoted as being as high as 150-300 per cent.[1] At the same time, national unemployment rates have dropped to 5 per cent, and in many areas of the country are as much as 2-3 per cent lower than the national average.

The seriousness of this problem, and the potential short- and long-term economic ramifications of it, have caused both employers and educators to recognize the need to improve, increase, and intensify communication in order to achieve their interrelated goals. In an attempt to provide direction for meeting that need, the remainder of this paper investigates existing

systems and levels of communication between employers and education/training communities here and abroad. Additionally, it makes recommendations for developing and refining the information exchange processes that will produce effective education for qualifying and retraining workers to meet current and future workplace performance requirements.

I. What has been the form and motivation for business involvement in publicly supported education up until the present time?

An early period of business leadership:

From the late 1800s through the 1920s, there existed a period of business leadership which defined the fundamental management principles and organizational structure of the emerging system of free, universal public education. The influence of business, specifically large manufacturers, on the developing comprehensive public education system was easily identifiable. It could be seen

- in educators' adoption of student ability grouping and differentiated performance standards (i.e., assignment of tasks to maximize individual and group production outcomes),
- in the organization of school management (i.e., top-down, centralized control; governance by a board of directors, headed by a superintendent or professional manager; clear division of management-- administrators, and labor-- teachers and staff), which mirrored the structure of business

organizations,

• and in the legislation enacted to create formal vocational education (i.e., reflecting the influence of of business in controlling the supply and demand of labor), (Meyerson & Zemsky, 1985; Useem, 1986).

In its early years, public education reflected and fed the nation's growth and prosperity as a manufacturing economy. The influx of immigrants into the cities during this time swelled public school enrollments and motivated business to actively pursue legislation that increased the availability of specific vocational training programs (to prepare for jobs in manufacturing, the trades, and agriculture) within the public school system (Grubb & Lazerson, 1974). Mandatory public schooling provided free education for the total citizenry and, in so doing, contributed to raised levels of general well-being and increased opportunities for upward social mobility for the average person. The manifestation of equal opportunity through education helped underwrite the "American dream" and thus indirectly motivated worker productivity for realizing personal goals and ambitions.

<u>The business leadership shift from national policy level to localized involvement:</u>

During the developing years of universal public education, business leadership activities implied a sphere of influence on a national or state policy level, in contrast to the localized nature of business leadership and

involvement which characterized the next three decades. From the 1920s through the 1950s, business assumed a less vocal, but nonetheless active role in influencing the education community. During this laissez-faire period, business gave input to the education system primarily through extensive representation on local school boards. Changes in statutes governing the election of school board members required them to finance their own campaigns; in larger school districts, especially, this resulted in candidates who possessed wealth and who were members of the upper or managerial class (McMullen & Snyder, 1987). Consequently, school policy and operations decisions often promoted the viewpoints and interests of the business community.

A time of political unrest and distancing:

Several factors combined in the 1960s to distance temporarily the business and education communities. The reexamination of the roles of society's institutions, occasioned by the civil rights movement and the controversy over Vietnam, brought about changes in the nature of business-education relationships and created a decade marked by social activism and anti-private sector disenfranchisement. Collective bargaining by teachers and the active involvement of community groups in the decision-making processes of local education systems served to decrease the amount of business interest and activity in education policy at this time (Timpane, 1982).

A period of resumed intensity:

An intensified period of business education activity resumed in the 1970s and early 1980s. Encouraged by changes in federal employment and training policy which gave employers a larger role in local program planning, private employers renewed their communications with educators. They helped manage training programs and, concerned with the growing plight of the country's large school districts, again became actively engaged in education improvement efforts. The business community assumed roles in government-mandated education and training programs by serving on Comprehensive Employment and Training Act (CETA) policy councils (PICs). Business leaders who served on PICs helped implement training programs that targeted job placement for the unemployed and a growing number of lower-skilled youth. Business also responded to the international space and arms technology race by participating in science, math, engineering, and vocational projects instituted under the Carl D. Perkins Act (1984) and the Math/Science Bill (1984).

The contributions of business to education during this period included not only money and materials, but commitments of time and personnel as well. The information communicated to educators by business people at this time consisted of data on actual and projected occupational vacancies, plans and program ideas for facilitating maximal educational achievement of all students (especially in the areas of math and science to ensure continued international leadership and defense), and listings of placements to be

provided for student part-time and summer positions.

Corporate efforts to influence the upgrading of public education at state and community levels during this period evidenced themselves in the founding of school-business collaboratives, such as the California Business Roundtable, the Boston Compact, and a variety of similar ventures (McMullen & Snyder, 1987; National Alliance of Business, 1987). Some of these involved business as representative members of Private Industry Councils; in others, business leaders served as members of local or ad hoc groups which emerged to plan for collaborative efforts.

Business leaders connected the reduced quality of education in many schools with the availability of fewer skilled workers, and the subsequent threat of losing America's international competitive position. This led to inquiries from business about what could be done to help reverse the situation (McMullen & Snyder, 1987). The focus of many of the business-education partnerships that resulted was to assist secondary students with the school-to-work transition process. This was accomplished by providing support programs for career exploration, job search, and employability skills instruction that would help students enter the workforce. Interim objectives to achieve these goals frequently addressed measurable improvements in school attendance, dropout rates, and graduate placement in post-secondary education. The role of business often was realized by the provision of activities designed to acquaint students with the nature of the world-of-work -- namely, career exploration days; field trips to,

and guest speakers from local industries; participation in educational activities at local cooperating colleges; classroom practice in filling out job application forms, producing student resumes, and role-playing job interviews; and student placement in part-time jobs to "experience" work (Prager, 1980; Schilit & Lacey, 1982; U.S. Department of Education, 1984).

In response to business concerns over the dwindling ranks of qualified job applicants, more recent efforts have incorporated instructional time specifically dedicated to raising student skill levels, in some cases by providing students with business-financed incentives in the form of monetary rewards for grades and escrowed higher education scholarships (National Alliance of Business, 1987; U.S. Department of Education, 1984).

A new strand of activity called "Workplace Literacy":

Because of rapidly changing job requirements and skills deficits among members of the existing workforce, a second strand of business-education activity has evolved in the 1980s. More and more frequently the media carries stories about "workplace literacy programs," i.e., employer-sponsored remedial basic skills programs for employees. Business organizations are now providing basic skills education for their employees as an ongoing, integral part of employers' investment in employee training and development at an increasing rate, in order to meet their needs for qualified workers. For several decades many large corporations-- including Control Data, General Motors, Polaroid, and Ford Motors-- offered academic

training to their employees, usually through tuition reimbursement plans for attending classes outside of work. At first, such programs were categorized as Human Resource Development and were frequently included as part of employee benefits packages (Fields, 1986). Over time, with the recognition of a declining skill level in increasing numbers of entering workers and the rising requisite skill level necessary to redeploy longtime employees, many of these companies found it more efficient to develop their own in-house educational programs, independently or with joint sponsorship from organized labor.

Research on efforts to improve employee literacy skills (collected from extensive military studies and private sector pilot programs), produced strong evidence that intense academic training on basic skills did not easily transfer to improved job performance because of the fundamental differences between academic and workplace applications of basic skills. Traditional academic reading can be categorized as "reading to remember information," while workplace applications primarily are those in which the worker uses readily available job print materials (such as manuals, regulations, or graphic aids) intermittently while performing a job task. The type of reading done on-the-job can be categorized as "reading to do" and utilizes reading processes for locating information and for using higher level thinking strategies to problem solve. Occupational writing processes differ, too. They place less emphasis on academic criteria like grammar and spelling and focus more on skill in organizing clear, readable products;

accurately summarizing events; and mastery of thinking skills which enable analysis, elaboration, and extension of written ideas. Workplace applications of mathematical processes for calculating information and for problem solving also go beyond the traditional basics of number concepts and computation skill-drill; competent workers need math proficiency levels that enable them to use math concepts to reason and interpret data.

Research demonstrates that the highest rates of transfer from instruction to improved job performance occur when basic skills are taught in the context of job simulations or activities (Diehl & Mikulecky, 1980; Philippi, 1987, 1988; Sticht, 1982). Developing programs of job literacy training that are built from the charts, manuals, and processes that workers use to perform tasks ("contextually functional curriculum") ensures that instruction will be meaningful to employees in terms of what they are already familiar with, i.e., their jobs. Using the existing "mental hooks" (schemata) derived from their work environment and experience to attach new information helps ease the incorporation of new knowledge into the old (Shoemaker, 1967; Fingeret, 1984; Farr, Carey, & Tone, 1985; Valentine 1985). It is important to note, however, that it is **not** the job tasks themselves that are the goals of instruction, but rather the basic skills needed by a worker to accomplish the tasks on a given job. Functional context workplace literacy curriculum emphasizes information processing. Instruction focuses on showing employees how they can perform the processes, on learning how to learn (Laster, 1985). By breaking processes

into the procedural steps characterized by job task analysis and by providing direct instruction in thinking strategies, functional context workplace literacy programs enable employees to develop self-questioning and mental activity-monitoring patterns (metacognition) which help them to become independent learners who can recognize and correct their own processing errors. And, having the opportunity to practice the newly learned skills on the job every day in the same context in which they were taught helps workers retain new skills and continue to use them. If, in fact, workers have successfully learned the job-related basic skills presented in effective workplace literacy programs, the results should be evidenced in higher job accuracy, productivity, and employee retention/ promotion figures, along with lower accident rates (Philippi, 1988). Consequently, customized job-specific basic skills instruction for employees ("functional context workplace literacy") is now being encouraged and utilized with increasing frequency, as part of employee development and training programs (U.S. Departments of Labor and Education, 1988; American Society for Training and Development, 1988).

The development of such workplace literacy programs requires a combination of information and expertise from the fields of education and employment training. Larger corporations use in-house trainers, educators, and instructional designers to develop these programs (Business Council for Effective Literacy, 1987; Skagen, 1988). Smaller businesses are turning to community and technical colleges to jointly develop and deliver workforce

literacy programs.[2] As this newly incorporated form of "basic skills training" for employees expands, the interaction and communication between the business and education communities will need to become more extensive in order to maximize its potential impact.

Spin-off business-education collaborative efforts in workplace literacy include investigations into the feasibility of using job-specific basic skills instruction in pre-employment and displaced worker training for JTPA-eligible populations. Using the vehicle of job simulations and job materials to teach remedial basic skills to prepare program participants to enter or reenter the labor market allows occupational training and education components to be taught simultaneously and thus shortens the length of time required for program completion. In several states, studies of such programs have begun in response to immediate regional needs for more qualified workers to enter targeted industries.[3] In addition, several school districts and youth employment programs have created models that incorporate job-specific basic skills applications into their secondary or basic skills curriculum to better prepare students for survival in the workplace.[4] A number of major educational publishing houses also are pursuing development of instructional materials for secondary, adult education, and employment training markets that focus on transferable job-specific basic skills (information-processing skills used in numerous occupational areas).[5]

II. How effective are current business-education communication configurations?

As noted in the previous section, business has become increasingly involved with the education community in a variety of ways during the 1980s. It is difficult, however, to make a "blanket statement" of the overall effectiveness of communicating business needs to educators. Many different levels and models of collaboration have been instituted between the business and education communities; and several of the workplace literacy models are too recent to have yet produced sufficient data with which to evaluate their long-term impact on worker eligibility and performance. Therefore, to convey a more accurate picture of the effectiveness of the current state of business-education communication, five general categories of collaborative activity have been identified and selected for examination individually. These are:

- school/business collaboratives (system-wide compacts, adopt-a-school programs, and student-focused school-to-work transition programs),
- programs utilizing Private Industry Councils,
- corporate and union-sponsored worker education programs,
- customized community, technical, and junior college education programs for local businesses, and
- business/education communication systems in other developed

countries.

School/BusinessCollaboratives: In their recent national assessment of school/business partnerships (Allies in Education, 1987), McMullen and Snyder report that almost a quarter of all U.S. public school districts are involved in some type of partnership activity with the private sector, and the movement appears to be still growing. A survey report from the National Center for Education Statistics, (February, 1989), states that the number of education partnerships in public schools rose from 42,200 in 1983-84 to 140,800 in 1987-88, with the more recent partnership figure representing direct service to 9.3 million students nationwide.

The National Alliance of Business (The Fourth R: Workforce Readiness, 1987) identifies six different levels of partnership involvement for businesses who form collaboratives with schools. These range from broadly defined activities that require large investments of resources with goals for policy setting and systematic educational improvements, to allocating moderate amounts of funding and personnel to assist with school management and staff development, to sponsoring special activities and incentives of donating specific materials or equipment. On all levels the impetus for involvement appears to come from business leaders within the community, who perceive their role as that of "giver" to the educational "receiver." Partnerships are usually entered into without expectations for direct, short-term benefits to business other than the promotion of these efforts in their literature and

media ads as a means to demonstrate "good will." Anticipated short-term benefits to education are discrete improvements in students' skills and knowledge. In the long run, businesses hope to improve the quality of the future labor pool and develop better-educated consumers with stronger purchase power (McMullen & Snyder, 1987).

Given the wide variety of structures and approaches used in school/business partnerships, the process of examining the effectiveness of their intercommunication is facilitated by classifying them according to the focal point of their activities. Three major functional school/business collaborative classification categories that have been identified by McMullen and Snyder are: 1.) system-wide school programs, 2.) individual school programs, and 3.) individual student programs (usually targeting disadvantaged youth):

1.) System-wide programs are less prevalent than the others and require the highest level investment of business resources. They may focus on affecting all the schools within an urban district, (e.g. the Boston Compact), or within a state (e.g., the California Business Roundtable). They work toward institutional change and policy reform for improving public school performance, and require significant contributions from numerous members of the business community, as well as long-term commitments. Larger businesses, government agencies, and institutes of higher learning tend to be involved with larger school districts. Fourteen per cent of all school/business partnerships in 1987-88 were of this variety (National

Center for Education Statistics, 1989).

In system-wide partnerships, communication usually occurs at the highest organizational level between CEOs and Superintendents or State Department of Education Directors. This type of collaborative is generally formed in response to crises in school performance throughout the system. Initial activities often include a funded study to document baseline statistics of critical school performance measures, such as attendance, grades, dropout rates and post-school placement in work or higher education--measures with which low ratings are frequently associated for large, urban, high poverty districts. Forty-five per cent of all schools involved in partnerships in 1987-88 were classified as "high poverty schools" on the basis of student eligibility for free or reduced-price lunches (National Center for Education Statistics, 1989). Communication between partners follows the baseline statistical study for a district, usually in the form of meetings and reports, for the purpose of goal-setting, program planning and implementation, and progress reporting.

The National Alliance of Business (1987) cautions that consensus on the critical nature of the problems and the setting of common goals are necessary to the success of the collaborative. Additionally, it recommends that the presence of a business intermediary, such as a Private Industry Council or Chamber of Commerce, greatly enhances communication by organizing and prodding local business into action. The intermediary agency can also help expand existing partnerships, and can assist in linking

representatives from appropriate organizational levels to expedite collaborative decision-making processes.

2.) Individual school programs, often referred to as "adopt-a-school" plans, are the most common type of school/business collaborative. McMullen & Snyder (1987) report that 22 per cent of the 9,000 school districts surveyed by the U.S. Department of Education in 1984 had one or more adopt-a-school partnerships within their districts. This class of school/ business collaborative is loosely defined and may involve only limited or sporadic contact between partners for a specified length of time (e.g., one or two years), or may evolve into a long-term, comprehensive relationship. According to the National Center for Education Statistics, in 1987-88, 32 per cent of all school/business partnerships were individual school programs initiated by the school principal. Typical activities in 1987-88 included business contributions in the form of monetary rewards or scholarships(44 per cent), materials, such as computer equipment or use of facilities (14 per cent), visits by business people as guest speakers to assist with special classroom projects or programs (45 per cent), and sponsorship of student tutoring programs (12 per cent). In 73 per cent of all partnerships, business provided guest speakers, special demonstrations, or equipment (National Center for Education Statistics,1989). Communications in this type of program are usually conducted by a designated mid-management employee and the principal, sometimes with the addition of locally appointed oversight committee members. It is normally limited to initial

contact for jointly determining education needs and forms of business responses, scheduling of activities, periodic monitoring and reporting of program features, and reports documenting program outcomes.

3.) Individual student programs focus on specific groups of youth. These may be high achievers, for whom business provides awards, scholarships, jobs, enrichment programs or donated equipment. Business also provides employability instruction and work experience (similar to cooperative education programs but of shorter duration) to average students who are unprepared for the working world. Another youth population often targeted for this type of program is the underachieving student, whose grades are lower than the academic potential he or she demonstrates on achievement tests. Business and higher education institutions frequently partner with schools in these programs to provide extra classes, mentoring, and jobs to motivate future success. Twenty per cent of the partnerships in 1987-88 were of this variety (National Center for Education Statistics, 1989). Specific content areas that are often targeted include: math or science, reading or writing, arts or humanities, civic or character education, and career awareness. Recently, a growing number of collaboratives have focused resources on youth in danger of dropping out, providing programs to encourage school attendance, graduation, drug prevention, and job placement. For 1987-88, the number of partnerships focused on this population was five per cent (National Center for Education Statistics, 1989).

All of these programs have a common goal of helping youth make a

successful transition from school to work. The programs attempt to identify and remedy those deficiencies that would hinder entrance to the workforce. Most of these programs serve students during their junior and senior years of high school, hold special small classes to maximize individual attention, use employability skills curricula, and provide work experience. These collaboratives are often able to access additional federal funding through the JTPA because they target economically disadvantaged students who lack working parent role models and who are in need of jobs (McMullen & Snyder, 1987).

Communication between the business and school communities in student-focused programs is much like that described above for system-wide and individual school programs because individual student programs tend to operate within one school or district. Slight variation in communication occur when the programs are operated by community-based organizations outside the school, or when JTPA funding is utilized-- usually requiring additional record-keeping and reporting. Little or no evidence is reported of direct information about employer needs being communicated to educators, other than vacancy listings. Performance standards and workplace applications of basic skills necessary for retention and promotion are usually not communicated. (An exception to this is the state of Michigan, which has solicited input from major industries located within the state, through the Governor's office, as part of the development of an employment qualification test for graduating high school students.) The reason such

information is rarely communicated may be because school/business collaboratives are viewed by business as interventions primarily to help students achieve initial entry to the labor force, and are only indirectly viewed as providing lifetime training for a quality workforce.

Programs Utilizing Private Industry Councils (PICs): Private Industry Councils (PICs) often serve as the intermediary agents that facilitate communication in school/ business collaboratives. JTPA regulations governing PIC membership mandate a composition of at least 51 per cent local business leaders, with the remaining representation to be drawn from education, labor, and the general community; this configuration should support communication between education/employment training providers and the business community. JTPA programs are designed to train or retrain potential or displaced workers to become more productive. Regulations specify that training include an education component for participants who are low level- or non-literates, or who have not yet earned a high school diploma or its equivalent. PICs generally contract with community-based organizations, proprietary schools, special service vendors, and local secondary and post-secondary school systems for training services. Payment for services is often contingent upon meeting performance standards, (e.g., specified numbers of participants successfully placed after training who remain employed for a minimum number of days). Two strands of information must be communicated to these education/employment training providers: predicted vacancies in the geographical area and

academic and occupational entry-level skill requirements. Entry-level requirements for basic skills applications as they are used in the workplace have not generally been part of the information made available to providers of instruction. PICs, in varying degrees of efficiency, collect and make this information available to the providers.

Projected vacancies and requisite occupational skill levels are relatively easy for employers to identify and describe, and for providers to translate into specific training competencies and criteria. Continuous industrial restructuring and technological upgrades create the need for constant updating and communication of this information.

Traditionally, academic requirements have been defined as reading at or above the 8th grade level and possessing or working toward a G.E.D. or high school diploma. However, lower unemployment rates create the need to serve increasing numbers of participants previously classified as hard-to-employ, many of whom have literacy skills well below the 8th grade level. For many of these participants, completing the educational requirements can mean as much as 200 hours of school-type remedial basic skills instruction. Most participants really only want the occupational training, and have not been successful in previous academic learning situations; consequently, they frequently drop out of the programs before meeting this educational requirement. This, coupled with the growing frequency of inadequately prepared high school graduates who apply for entry-level jobs, and the overall decrease in numbers of applicants, indicates

a need for business to reevaluate and redefine basic skills requirements as more than just minimally acceptable reading grade levels or levels of school attendance or a G.E.D. There is a need to communicate those specific workplace basic skills applications that are necessary for competent performance of job tasks-- for entry, retention, and promotion in the labor force. Alternatively, the business community is faced with extended JTPA training programs that do not train participants quickly enough to meet their labor force needs.

Corporate Worker Education Programs: For a number of years, large corporations have been providing educational opportunities for their employees. Usually packaged in the form of tuition reimbursements for courses taken away from the worksite, education benefits were often negotiated by unions and encompassed worker enrollment in job-enhancing studies on the levels of higher education or adult basic education. As the number of available qualified entry-level and retainable workers decreased, more and more businesses looked toward providing their own in-house remedial skills programs for their workers. These began with the assumption that the educational intervention should focus on the development of academic basic skills that previously had not been mastered. In a recent bulletin (1987) the Business Council for Effective Literacy reported that UAW negotiated agreements with Ford, General Motors, and Chrysler from 1984-86 totaling more than $320 million to establish basic skills programs for employees. Under these agreements, the corporations

provide part of program funding and the balance was covered by deductions from wages to cover training costs. The majority of these programs operate under agreements similar to that of UAW-Ford, in which provision of all technical training is the responsibility of management and all other work-related and non work-related educational needs or desires of employees are addressed through a collaborative institution or agency, such as the UAW-Ford National Education, Development, and Training Center. Through programs developed or sponsored by such Centers, (like UAW-Ford's employee Skills Enhancement Program), workers are offered courses that provide not only basic reading or math to function in every-day life, but also give instruction in requisite skills for statistical quality control, computerized numerical control of machinery, and use of robotics on the production lines. Joint planning teams operate in major plants to analyze changing workplace and personal employee needs; and designated liaisons function as agents between the teams and local education systems to communicate those needs, (Elrod, Sloat, & Foreman, 1989).

Early in the 1980s, the communication from employer to outside or in-house educator consisted of the results of individual employee assessments administered to determine skill deficits and to plan individual courses or remediation, along with requests for reports of employee progress. Additionally, in performing needs analysis, job print materials (manuals, forms, and so on) were often evaluated to identify their readability level, which was then used as the basis for quoting requisite reading grade

levels for specific job positions. Many corporations found that post-program academic achievement gains by employees frequently did not translate to significant positive changes in organizational records of productivity, job accuracy, and safety. Consequently, management began to explore more effective ways to use education to impact on improving job performance. Following the pioneer efforts of Polaroid Corporation, companies like Control Data, Traveler's Insurance, Onan, Aetna Insurance, IBM, and the major automobile manufacturers began to have in-house educators and instructional designers develop customized instruction to teach employees the basic skills they need to perform their jobs (Business Council for Effective Literacy, 1987; Skagen, 1986.) In these exemplary programs, company employee training and education specialists work together with instructional designers to analyze critical job tasks and identify the workplace basic skills applications embedded in them, then create curriculum from the context of specific job situations a vehicles for teaching the necessary basic skills for competent job performance. Using this process as an ongoing, integral part of organizational training provides a permanent communication loop between in-house trainers and educators for meeting current and future workforce requirements. It also allows for information input from line supervisors and competent employees who are interviewed and observed as part of the job task analysis procedure.

Customized Community College Education Programs for Local Businesses:

Smaller businesses, and some mid-sized corporations, do not have the resources to dedicate to developing employee education programs. To solve this problem, they frequently turn to local community or technical colleges (or local branches of state universities), who provide customized job-related basic skills courses for their employees. Sometimes these courses are located at the worksite, sometimes not. Businesses often approach community colleges who have previously provided technical courses (e.g., blueprint reading) for their employees and who have an adult basic education department. The most effective communication models are used by those programs in which local businesses and college staff form a team to co-design, co-write, and oversee the implementation of customized curriculum to instruct workers in job-specific applications of basic skills, (rather than just having them select traditional off-the-shelf GED and Adult Basic Education materials for workers to use at a worksite classroom). In exemplary program models, such as the state-wide effort in South Carolina Technical Colleges, Rockford (IL) Community College, and Gateway (Phoenix, AZ) Community College (see Note 2 for others), a team is developed from college faculty and individuals from the firm's personnel department, (generally whoever is responsible for employee training). The team gathers information on employee performance and job requirements for basic skills, through needs analysis (employee testing and examination of organizational performance, productivity, accident records) and literacy

audits (analyses of job tasks from employee and supervisor observations and interviews). This information is then used to identify critical job tasks and the basic skills needed to perform them, which then become the basis for curriculum development (and delivery) by the college staff. If the curriculum developed as a result of this process is needed by other area businesses, it is often "packaged" and made available by the college. The difficulties inherent in this process are that 1.) college instructors who are content-area specialists in either adult education or technical subjects have trouble adapting their area of expertise to combine content areas in the development process for a customized job-specific basic skills curriculum, and 2.) technological changes and upgrades can quickly make course content obsolete unless a system is devised for business to continually provide cooperating colleges with updated information on job content and requirements. The benefits of customized job-specific basic skills curricula are the high rates of skill transfer from instruction to job performance and the shortened duration time for courses. Because of the prior job knowledge participants bring to the learning situation, and because the functional context approach to developing curricula uses learners' job tasks as a vehicle for teaching workplace basic skills applications, gains are achieved more rapidly (40-60 hours per grade level) than in traditional basic skills programs (100 hours per grade level), (Philippi, 1987; Sticht, 1982). Retention of gains has also been demonstrated when a job-specific approach to basic skills instruction is used, (Sticht, 1982), because participants

immediately apply and practice what they have learned in their daily job tasks. Because courses can be of shorter duration and still demonstrate lasting results, more flexibility in scheduling is feasible. Attending two-hour sessions twice per week for a ten-week period is far more likely to generate higher rates of participant commitment and course completion that longer, traditional (e.g. 100 hour) programs. And, because the goals of such courses aim at improving job performance, many employers now provide paid release time during work hours for employees to attend. By having college staff offer courses at the worksite in shorter cycles, course availability and appeal to employees increases.

Business/Education communication systems in other developed countries:

Because the state of a country's productive capacity and international competitiveness is directly linked to its education and employment training systems, it is important to consider and compare our own system to those of our competitors. The countries of Japan, West Germany, Sweden, and Hungary lend themselves to this sort of comparative analysis because they are all highly industrialized and yet represent a diversity of types of schooling, career preparation, and placement (George, 1987). In each of these countries, with varying degrees of control, the communication of business needs to the education systems is largely accomplished through national government ministries. Within their different structures and underlying philosophies are items worth considering for streamlining our country's flow of information between the business and education

communities.

Japan's system is most nearly like our own in that an academic secondary education is more prevalent than vocational education. Similar to the U.S., schooling is divided into elementary (grades 1-6), lower secondary (grades 7-9), and upper secondary (grades 10-12). Attendance is compulsory to age 15. Unlike the U.S., Japanese education follows a somewhat inflexible curriculum, stressing the mastery of factual material through rote drill and memorization, and is highly competitive. Students often attend extra classes at private tutoring schools, or juku after school and on weekends to qualify for entrance into prestigious upper secondary schools, which are not free of charge (Leetsma, August, George, and Peak, 1987). Approximately 94 per cent of all students advance to upper secondary schools, and another 5 per cent go on to vocational training and work. Job referral is accomplished through effective school-based employment services, which play a significant role in matching non college-bound graduates with available jobs. The system is based on cooperation and trust between the upper secondary schools and employers. Business communicates its projected vacancies, and occupational and academic entry-level workforce needs to the Public Employment Security Office (operated by the national Ministry of Labor), which then relays the information to all the upper secondary schools. The schools which have traditionally supplied particular corporations with employees, and are unofficially ranked according to prestige of placements and resulting

demands for enrollment. Employers are prohibited by law to have direct contact with students or schools, and must communicate and have vacancies filled by working through the PESO. Employers identify and articulate their needs to the PESO so that the school system can respond. Schools currently emphasize the teaching of basic attitudes about functioning effectively in an organization and the behaviors believed necessary for success in the Japanese world of work. These include a high level of general basic education, disciplined work habits, and group cohesiveness. The underlying educational philosophy focuses on individual effort, in contrast to the U.S. focus on individual ability. These philosophical differences are evidenced in the content and societal goals of education in each country's system. The curriculum in Japanese schools is uniform and rigorous for all students. It is understood that, given the same educational input, competition among individuals, (i.e., the effort they exert to achieve), will determine outcomes. Competition instills in learners the value of constantly striving to improve performance. This principle, along with instructional emphasis on group cohesiveness and effective functioning within an organization, prepares students to meet similar behavior and attitudinal goals in the workplace and in the larger context of Japanese society. (The Japanese school system itself "practices what it preaches" by effectively functioning within the society/ organization as a provider of the labor force which feeds the economic goals of the country.) In contrast, U.S. school curricula provide multiple levels and varieties of content, determined by the diverse needs, interests, and

ability levels of individual learners. A student's performance is measured against his or her own ability level; the learner is only in competition with himself or herself. This philosophy of "filling one's potential" reflects the U.S.' historical view of the purpose of education: to better the human condition and to perpetrate the aggregate knowledge of the culture. While subscribing to this liberal arts, Rennaisance model upholds the societal goals of freedom of choice for the individual, it does little to provide educational outcomes that support the development of a skilled, cohesive labor force dedicated to a priority for achieving national goals for survival in today's international economy.

The value Japan places on its education system as tool for economic success is evident in its national support for the establishment and maintenance of education credentials and their employment/ recruitment policies and practices. The main responsibility for maintaining this structure of contacts with business and for assisting students with their job searches is borne by the schools (Leetsma et al, 1987, pp. 44-61). This appears to have a direct influence on the low rate of school dropouts, (less than 1 per cent).

West Germany's education system emphasizes vocational training and apprenticeship over academic secondary school. More than 75 per cent of the students receive vocational training and do not go on to universities. Schooling is free and attendance is compulsory from ages 6 to 18 years. Students must attend school full-time for nine years, and then at least

part-time for 2 to 3 more years (George, 1987). The education system is based on a vertical structure, under which career paths must be decided upon early in life, (at the age of 10 years), and are more or less irreversible. Results of an examination play an important role in determining what type of secondary education may be pursued. The four levels of choice are:

- the hauptschule which terminates formal schooling at the equivalent of the end of 9th grade and prepares students to enter an occupation at that time.

- the realschule which is vocationally oriented and prepares students to continue their education in a higher level technical school for non-academic occupations.

- the gymnasium which is continued academic coursework and which is required for admission into the universities.

- the gesamtschule which equates to a comprehensive U.S. high school, providing additional academic skills training and selected vocational training courses, tracking students according to abilities. (This has been recently added to the system. It provides an alternative for those students who fail two years in succession at gymnasium and are dismissed. Too late to enter an apprenticeship, they were formerly abandoned by the system.)

The Federal Employment Services determine which vocational courses will be offered, and coordinate offerings with labor demands at regional levels. Until recently, Germany's system for developing apprenticeships and vocational training areas based on communicated needs from the business

community provided an efficient model for collaboration of systems on a national level. Because of Germany's current levels of low economic growth, large numbers of resident foreigners holding work-permit type visas (Gastarbeiters), and high rates of unemployment (14 per cent), the balance of labor' supply and demand has become unsatisfactory. Many students who finish apprenticeships or training remain unemployed; they are often required to participate in apprenticeships in occupations for which they have no career aspirations, rather than leave the system without obtaining any occupational certificate and be unemployable. As in the U.S., "creaming" of the most skilled job applicants who complete training is creating an increasing number of unemployed lower-skilled workers (von Dohnanzi, 1978). Germany is faced with tolerating a higher permanent rate of unemployment and now encourages students to participate in longer periods and higher levels of schooling and training. Despite the present oversupply of labor, the German apprenticeship system of education provides business with a workforce that meets behavioral, attitudinal, and performance requirements. This is the result of the experiential, contextually-based instructional methodology inherent in apprenticeship programs, which facilitates participants' functioning in a changing, technological workplace.

Sweden's education system has a large vocational element in its upper secondary schooling. Compulsory non-vocational school is provided for students ages 7 to 16 years. By the sixth year of school, career exploration is introduced into the curriculum, and includes specific information about

occupational training and two-week visits to one or more private or public workplaces for observation (George, 1987). Municipal authorities are partners with the National Labor Market Board (Arbetsmarknadsstyrelsen). Through county-level labor boards, they work with the education system to provide programs at the local level to meet employers' needs. The number of openings for students in vocational schools, academic high schools, and universities is carefully controlled by the labor board and depends on labor market forecasts provided by business. The system operates on the assumption of direct communication, access, and control of educational offerings of the education community by the business community (working through the agency of the local and national labor boards. This includes the authority to generate special courses for basic work-life orientations as needed. Any sudden changes in supply and demand, which result in mismatches of students to the jobs for which they have been trained, is compensated for by municipalities engaging students in "temporary" relief work (i.e., public service) or obtaining private sector positions for them (approved by labor unions) which anticipate future vacancies (Rehn & Petersen, 1980). The concept of schooling as a means to fulfill the needs of business is integrated into the curriculum during the early years of formal education, thus becoming an intrinsic goal of student participation in the education system.

Hungary's education system reflects the state philosophy of subordination of the individual to societal needs. The state education system

assumes responsibility for the up-bringing of the child; parents are merely individual administrators of state decisions and policies. There is an underlying educational theory that intelligence is acquired and not innate. Therefore, no selection process is considered necessary beyond the filling of societal needs through the creation of appropriate workers. As in all Eastern Bloc countries, there is early exposure to various forces of labor, and interest and respect for all occupations is encouraged under the "polytechnic principle." Compulsory school attendance is required from ages 6 to 16 years, and every student understands that the purpose of education and all careers that follow it is to further the state (Frank, 1984). Secondary school education is divided into three possibilities: grammar school, technical secondary school, and vocational school. The curricula is centrally set by government ministries; at both secondary and post-secondary levels, schools and programs are established or dissolved by the Party Ministry of Education, depending on needs for manpower in various occupations. The teachers in vocationally oriented programs are usually former mastercraftsmen. Graduates of vocational and technical schools receive a broad enough basic education that, like grammar school graduates, they qualify to enter any higher education institute on condition of passing an entrance examination. Graduates of these schools who want to continue their education traditionally apply to polytechnic institutes to receive additional certification. Two levels of certificate are issued: upon graduation, a "technician's certificate" is awarded; upon completing two years of work

and passing a practical examination, a "skilled worker's certificate" may be earned. Job placement can be anywhere in the country where a vacancy exists (Braham, 1980). In Hungary, "there is no unemployment because the right to work is guaranteed by the government," (George, 1987, pg.3). Balanced against the lack of individual choice in careers and work locations is the pride, self-worth, and respect for all job titles as having equal value and status for reaching the economic goals of society. No one job is more prestigious than another; each worker in every job is valued for the contribution he or she makes. Because of this, workers can take pride in how they perform, rather than in what they do or do not do.

Although each of the above country's systems for communicating business needs to educators varies greatly from our own, certain elements of their procedures are worth pondering in light of the increasing numbers of dropouts and underqualified graduates of U.S. schools. Most obviously, the quality and timeliness of information that is communicated to foreign schools about the needs of business is more precise than in the U.S. because of central, federal control of the systems. Given the size of the U.S. labor market and our government structure in comparison to the developed countries described above, the tightly controlled education/labor supply and demand systems used abroad are not feasible for adoption in this country. However, regionally or at the State level, many of the strategies mentioned might be implemented. The school's function in these countries as placement and referral intermediary for those students not going on to

college could be encouraged in the U.S. Building a structure for direct placement would provide a vehicle for continuous, mutually beneficial communication between the business and education communities. PICs or local business round tables could serve as agents to facilitate improved quality and quantity of information communicated. Additionally, the adoption of required school certification of individual student training and academic achievements applicable to the workplace (coupled with complementary "workfare" regulations) could motivate students to perform and to complete their schooling. And finally, State education agencies could support the early inclusion in curricula of career exploration and expectations for student assimilation into the labor force as adults. This would enhance student acceptance and pursuit of societal values placed on individual effort and on respect for competent workers in all occupations.

III. What are some recommendations for improving the flow of information between the business and education communities?

Some issues to address:

Existing school-business collaboratives are complex, varied models. They focus on a wide range of divergent target populations: secondary students, dropouts, employees, displaced workers, and so on. Their effectiveness is dependent upon the quality, quantity and timeliness of the information communicated between partners for the purpose of translating workplace requirements into relevant curricula for program participants. Oftentimes

research on effective instructional design, methodology, and implementation remains unknown or ignored by program developers. This is due in part to the conflicting societal goals concerning the purpose of education. Since the beginning years of public schooling in the U.S., education has focused on amassing a core of commonly held knowledge, i.e. on learning to remember. Until recently, this fulfilled the needs of business for multiple skilled levels of employees by supplying a generally well-educated labor force. However, the upward spiral of technology in recent years has created a situation in which job requirements now change rapidly and demand higher skill levels for entry and promotability. The traditional goals of the education system no longer match the needs of the business community. Education still provides instruction for remembering knowledge from distinct content areas. Business needs workers who can apply information processing skills to an ever-changing workplace, skills that cut across content areas and are portable as job contexts for use continue to change. For example, students no longer need to simply memorize the contents of a chart on Civil War battles in their history books; instead they need to learn strategies for locating the information they need on that chart or any chart to solve task-related problems in the classroom, in the workplace, or in everyday living. In order for business/education collaboratives to become mutually beneficial, the purpose of education must be more broadly defined by society.

As jobs change and demographics change, students are becoming a harder-to-serve population. Motivation to stay in school or return to school

is difficult to instill in learners who are at risk of being less than fully functional in our society. To entice learners to participate in education programs, content must be relevant to their needs. And those needs are undergoing change as well. For many years, unemployment rates were high; there were more applicants than there were available jobs. School and school/business collaborative programs to prepare learners to enter the workforce concentrated on enhancing the employability skills requisite to getting a job, i.e. resumes, applications, interview skills, and so on. Now that unemployment rates are low, there are more jobs than there are qualified applicants to fill them. The focus of programs needs to shift from preparing the job seeker to compete for a position, to preparing the job applicant to succeed in performing well enough in a constantly changing workplace to retain a position. Research demonstrates that this can be accomplished through redesigned programs to assist reluctant learners in qualifying for and remaining in the labor force that are the joint efforts of the business and education communities. The following recommendations suggest ways in which the current models could be made more effective through improved communication:

1. Encourage education community initiative:

Recent studies of school/business collaboratives indicate that one of the major deterrents to communication and program success is a lack of trust between partners (Waddock, 1986; Rezabek & Saul, 1986). Preconceived stereotypes concerning the value differences of the other sector partner

contribute to this lack of trust. Paul Barton (1983) comments on this:

> The problem for the involved [collaborating] parties is an enduring tension which arises from the ambivalence between our larger visions of human potential (for which we advocate general education) and the here-and-now realities of the industrial society in which we live (for which we advocate up-to-date occupational preparation)."
>
> - Responding to Change: Occupational Preparation in the 1980s, pg.27.

Barton recommends that what would resolve this issue is an integration of occupational and general education, a refocusing of employability instruction to include more teaching of actual workplace problem-solving skills and teamwork methods which facilitate job retention. This expansion of the current school/business collaborative goals which emphasize school-to-work transition and narrowly focus on initial job acquisition, would enable partnerships to not only produce a marketable product (i.e., students qualified to enter the workplace), but also provide a "product warranty" for continued performance of graduates (job retention).

Two school/business collaboratives have pioneered models that reflect this refocusing of program goals and content:

Prince George's County Public Schools in Maryland surveyed local businessmen to determine the skills deficits perceived by employers among recent graduates who had been hired. Working with an Advisory Council for Business and Industry, made up of county business persons, the school's career education task force then gathered information on the workplace basic skills applications needed by entry-level employees for competent job performance and retention. They used the data to develop a set of workplace basic skills competencies and to rework instructional curriculum, which was reviewed by employers on the Advisory Council. Students who graduate from Prince George's County Public Schools now go to local employers with a guarantee for performance of workplace basic skills applications and with an Employers' Report Card. Any student performing

below established and guaranteed skill standards is returned to the school for specified skill remediation, free of charge.

(Lendesy, 1989)

Youth Opportunities Unlimited (YOU) is a community-based organization that works with Cleveland Public Schools to facilitate successful school-to-work transition for juniors and seniors. The program currently operates in nine of the twelve city high schools. To expand their traditional employability skills, job acquisition curriculum to include skills needed for job retention after hiring, YOU has contracted to have instructional lessons developed that teach students general workplace literacy skills applications. Using the past placement records, they first identified the occupational areas in which the majority of recent program graduates had been hired. Literacy audits were then conducted at local businesses and industries representing each of these occupational areas. Critical job performance tasks for entry-level and promotable positions in each of these areas were identified by employers, then were task-analyzed to determine the workplace basic skills applications embedded in these job tasks that are required for competent job performance. Representative job print materials used in these tasks were collected from the job sites. Job simulations were then created, using these materials and information gathered from worker observations and interviews, to provide instruction in workplace basic skills, so that students can obtain hands-on experience with basic skills employers need in the context in which they appear on the job.

(Philippi, Public/Private Ventures, 1989)

In both these examples the education sector took the initiative to prepare students for continued success in the workplace, demonstrating capability for meeting employer's needs. In Responsiveness of Training Institutions to Changing Labor Market Demands, (1983), Pat Choate reports, "Employers will share information about their training needs only if there is a reasonable expectation that the training institutions can help fill those needs," (pg. 127). For this reason, it is recommended that the education community be encouraged to implement models like those described above to become the "giver" and not just the "receiver" in school/business collaboratives. Activities such as those described above would qualify for federal funding monies under Chapter I and Chapter II of the Hawkins-Stafford Public Law

100-297, (1988) which is currently used to provide compensatory education for students needing extra educational services, mostly in elementary schools. Sections 1103, b.,3, and 1405, 1531,b.,1,2,3, and 1541 and 1542 stipulate the use of these funds for developing and providing necessary services that would ordinarily not be available to them (such as those described above).

The strength of school business partnerships would be enhanced by this proactive approach because educators could assume the role of success agents. This is important because in many collaboratives, business intervention-- although welcome support-- delivers the unspoken message that the education system on its own has failed. Reinforcement for this attitude is seen in the urging from private sector spokespersons to revamp education management models so that they resemble corporate structures (Kearns & Doyle, 1988; Kolderie, 1987). Promoting the concept that business funds should be used to effect decentralization, teacher autonomy, and competition among individual schools connotates current "mismanagement" by the education community and does little to build the trust between partners that is required for good communication.

Additionally, by encouraging schools to assume the responsibility for obtaining information from the local business community and for redesigning curricula to reflect that information, three more benefits would result:

- Through involvement with information gathering and curriculum development processes, teachers would become more knowledgeable of the

goals of instruction (i.e., to prepare students to perform as competent employees in the workplace), and consequently would become more flexible and adept at managing instructional delivery. This would create a potentially more effective learning environment and would encourage teachers to maintain and upgrade their professional teaching skills, namely curriculum development and adaptation, which can atrophy with constant dependence on off-the-shelf instructional materials (Apple & Teitelbaum, 1986).

- The teaching of workplace basic skills applications for information processing that transfer across many occupations would assist students in recognizing the importance of schooling and its relevance to their future, providing motivation for school performance and well as advance knowledge of employers' performance expectations.

- The addition of job retention skills (e.g., workplace "basic skills" processes for locating information, problem-solving, troubleshooting, teamwork, interpretation, reasoning, analysis, summarizing--see pp.8-9), to job acquisition skills (e.g., resume writing, interviewing, job applications) that are normally focused on in collaborative programs, plus movement toward issuing guarantees to employers for mastery of those skills by school graduates, would increase the authority of schools as job placement agents. And, like the education systems in other developed countries, it would enhance their holding power over potential system dropouts.

2. Develop and disseminate a model instrument that structures communication:

The quality of communicated information appears to vary directly with the type of benefit business receives and the specificity of the goals of collaboration. For example, when employers work with their own trainers and education specialists or jointly with community college staff to develop employee education programs, accurate information (e.g., about how basic skills applications are used to perform a particular critical job task) is transmitted and responded to in order to achieve a specific and immediate common goal.

When employers work with school systems, the process of communicating is less clearly defined. Goals may be agreed upon and stated, but they tend to merely extend the goals of the education community and not be aimed at producing direct benefits for the business community beyond recognition of their "good will" efforts through association with the partnership. A communication process needs to be developed for collaboratives to identify what is to be communicated and who the communicators for each of the partnering systems should be. To focus the communication and goals of school/business collaboratives to enable them to be mutually beneficial, it is recommended that a model be developed and made available for use. When employers work with PICs, the communicated information to JTPA program providers for training/education is specific. Program vendors are able to provide appropriate instruction, based on

knowledge of projected labor force vacancies and targeted participant populations they receive. The procedure for communicating and the content and goals of programs are governed by regulations; and anticipated outcomes are clearly stated. PICs already function frequently as agents to facilitate the formation of school/business collaboratives. If a model were to be developed by the government to structure the use of PICs in an extended capacity, as definers and regulators of the process of ongoing communication between the business and education communities, partners would be able to form more mutually beneficial, longer lasting relationships. Local school districts (or individual schools) could be provided with guidelines for developing programs that met employers needs, then submit proposals to the PIC, which would be instrumental in the selection process for matching schools with local firms. Additionally, participating firms could be offered tax credit incentives.

To provide direction for operations of the partnerships, it is also recommended that a structured data collection instrument be designed for communication between partners in programs. During the past year, an intensified federal interest in workplace literacy has resulted in numerous grant awards, sponsored by the U.S. Departments of Labor and Education, to fund the development of business-education collaboratives. Their focal points include the process of curriculum development and evaluation of instructional impact on worker performance, both of which are contingent upon conducting appropriate communication between collaborating

partners. To facilitate these efforts, the Departments of Education and Labor provided general guidelines and a recommended model for gathering information about requisite workplace basic skills applications in their joint publication, The Bottom Line (1988, pp.11-40). If these guidelines were to be fleshed out with more specific suggestions for adaptation to the various collaborative designs, a model could result that would better enable the communication of employers' needs to the education system and enhance the ability of schools to respond with effective programs.

Other existing prototypes for communicating also might be considered for input into a model that PIC-monitored collaboratives could use. The Colorado State Board for Community Colleges and Occupation has developed and published a prototype for assessing employer needs, based on a synthesis of effective models that were researched (Developing and Implementing a Program of Employer and Job Needs Assessment, 1985). Operating through a two-pronged survey effort, it considers potential student interests, needs, and capabilities, as well as employers and regional current and projected skill requirements and labor demands. The model has a flexible format for adjusting to local labor needs; and it outlines a system for creating a database and continuing data collection and updating without additional field surveys (Hill & McMurlyn, 1985).

The California State Council on Vocational Education has researched and evaluated five different models for coordinating JTPA training with education agencies to provide comprehensive services to participants.

Focusing on goal-setting, contracting, and program management strategies, they recommend state and local guidelines for working with public education systems (Rezabek & Saul, 1986).

These models could be expanded, refined, and combined for use as a resource tool with all levels of business/education partnerships.

3. Conduct further research on the role of federal government in business/education communication.

More information is needed to determine how to involve enlightened corporation and education members of local communities in collaborative efforts. Local government might serve as a clearing house on information concerning potential partners. PICs might be used as facilitators, regulators, and monitors of school/business collaboratives; if this were to be done, their participation would need to be clearly defined and resources would need to be provided for them in the form of a model, guidelines for implementation and evaluation, a communication instrument for use in gathering data on employers' needs, and training for PICs to carry out these charges. Educators need additional training in the use of a functional context approach for developing curriculum and instruction (from information gathered from employers) that will prepare learners to perform as competent members of the labor force. A skills guarantee issued by the school to employers and feedback to the schools from employers might strengthen the responsibility and accountability of partners to each other. Funding mechanisms might be developed as incentives for participation, in

the form of worker training loans (like student loans) or tax credits for business partners. Research could identify the appropriate facilitating role for government in each of these areas.

Summary

From the late 1800s to today, business has exerted influence on the nation's public education system. Employers have had input into its structure, operations, and regulating policies on local and national levels. An intensified era of business education activity has come about as the result of changes in federal employment and training policy which gave employers a larger role in local program planning. The business community often provides educators with data on projected vacancies, and facilitates academic achievement through participation in school/business collaboratives, which focus on school-to-work transition assistance. Recently, workplace literacy programs have emerged as a new strand of business/education partnership in response to the imminent labor force shortfall of qualified workers, resulting from demographic changes and technological upgrades.

Various models of business/education collaboration exist: school/business partnerships, Private Industry Council sponsored programs, corporate and union-sponsored worker education programs, and customized community college programs for local businesses. Improvements in these collaborative efforts would require educators to recast their role as receivers of services and resources from business to one of more active participation

in translating workplace requirements into relevant curricula of schools. Examples of business/education communication in other developed countries are instructive regarding approaches to improving the quality and timeliness of the information about business needs communicated to the schools, and how schools might serve as placement and referral intermediaries for students who are not college bound.

Recommendations resulting from the literature and research review findings are that educators be encouraged to initiate a more proactive role in meeting the needs of the business community, that PICs be given a larger, regulatory role in facilitating partnerships and communication guidelines, and that more research be conducted to identify the appropriate facilitating role for the federal government.

NOTES

1. Statistics obtained from personal communications with McDonalds; Triangle Horseshoe Mfg., South Carolina; Walgreen Company, Illinois; and the American Bankers Association and its affiliates.

2. Customized job-specific workplace literacy programs have been developed to meet the needs of local businesses and industries by community colleges in Rockford, IL; Lakeland, IL; Highland, IL; Richland, IL; El Paso, TX; Phoenix, AZ; Meridian, MS; Spartanburg, SC; Greenville, SC; TriCounty (Pendleton), SC. Additionally, programs have been developed by Georgia State University, Pennsylvania State University, Indiana University (Bloomington), and the University of Minnesota.

3. Pennsylvania Task Force on Education for JTPA and Welfare Program Participants is currently investigating ways to combine required education program components with employment training by using job-specific basic skills materials. Mississippi Governor's Office Adult Literacy Program, in conjunction with the National Alliance of Business and regional SDAs, is attempting to coordinate the use of workplace literacy instruction among military, private sector, and JTPA-eligible populations. South Carolina's Governor's Workforce Excellence Initiative is in the process of developing a JTPA-funded statewide job-specific literacy program to serve JTPA -eligible unemployed,with assistance from the state's technical colleges and coordination by local business roundtables.

4. School districts in Prince George's County, MD, and in Cleveland, OH, are proactively seeking out information from local businesses about requisite workplace applications of basic skills, and are providing instruction in them for students in pre-employment secondary classes. Pilot programs being conducted by New York City's Youth Employment Program are also using workplace literacy task analyses to develop functional context curricula that combines occupational skills and basic skills training for participants.

5. Publishers developing job-specific basic skills instructional materials also include McGraw-Hill; Scholastic; Science Research Associates (SRA); Harcourt, Brace, and Jovanovich; and Simon and Schuster. Additionally, IBM and Apple Computer have dedicated departments to development and marketing of Adult Education/Employment Training courseware. Because publishers survive by projecting goals that must be met by educators and by translating appropriate research into practice; and because classroom instructional content of the education system is heavily influenced-- even to the point of being "driven"-- by the basal and textbook series produced by the major educational publishing houses, it is important to observe these signals of change and reflect on the impact they will have.

REFERENCES

Apple, Michael W. and Kenneth Teitelbaum, "Are teachers losing control of their skills and curriculum?" Journal of Curriculum Studies, Volume 18, No.2, 1986. 177-184.

Barton, Paul, "Responding to Change: Occupational Preparation in the 1980s," in Taylor, Robert, Howard Rosen, and Frank Pratzner (Eds.), Responsiveness of Training Institutions to Changing Labor Market Demands, Columbus, OH: The National Center for Research in Vocational Education, The Ohio State University, 1983. 25-35.

Braham, Randolph L. The Education System of Hungary, U.S. Department of Education Publication No. E-79-19139. Washington, D.C.: U.S. Government Printing Office, 1980.

Business Council for Effective Literacy, Job-Related Basic Skills: A Guide for Planners of Employee Programs, BCEL Bulletin, Issue No. 2, June, 1987.

Carnevale, Anthony, Leila Gainer, and Ann Meltzer, Workplace Basics, Alexandria, VA: The American Society for Training and Development and the U.S. Department of Labor, 1988.

Choate, Pat, "An Early Warning System: Reactor Comments," in Taylor, Robert, Howard Rosen, and Frank Pratzner (Eds.), Responsiveness of Training Institutions to Changing Labor Market Demands, Columbus, OH: The National Center for Research in Vocational Education, The Ohio State University, 1983. 127-130.

Committee for Economic Development, Children in Need: Investment Strategies for the Educationally Disadvantaged, A statement by the Research and Policy Committee, 1987.

Diehl, William and Larry Mikulecky, "The Nature of Reading at Work," Journal of Reading, Volume 24, 1980. 221-227.

Dole, Elizabeth. Comments made during installation as Secretary of U.S. Department of Labor as reported in "Reducing Illiteracy is Best Way to Beat Skills Gap, Dole Tells Congress," Employment and Training Reporter, Volume 20, No.20, February 1, 1989. Manpower Information, Inc. 571-572.

von Dohnanyi, Klaus. Education and Youth Employment in the Federal Republic of Germany. A study prepared for the Carnegie Council on Policy Studies in Higher Education, 1978.

Elrod, Brian, Cindy Sloat, and Larry Foreman. Comments made during

personal interview at UAW-Ford National Education, Development, and Training Center, Dearborn, MI. June 2, 1989.

Fields, Ernest L. "Industry-Based Programs: A Growing Source for Adult Literacy Development," Lifelong Learning: An Omnibus of Practice and Research, Volume 10, No.10. 7-9.

Frank, H.Eric Human Resource Development: The European Approach, Houston, TX: Gulf Publishing Company, 1974.

George, Rosemary. Youth Policies and Programs in Selected Countries. The William T. Grant Foundation Commission on Work, Family, and Citizenship. August, 1987.

Grubb, Norton W. and Marvin Lazerson (Eds.) American Education and Vocationalism: A Documentary History, 1870-1970, New York: Teachers College Press, 1974.

Hawkins, Augustus F. and Robert Stafford Elementary and Secondary School Improvement Amendments of 1988, Public Law No. 100-297, April, 1988.

Hill, Michael and Clifford McMurlyn Developing and Implementing a Program of Employer and Job Needs Assessment. Mesa , CO: Colorado State Board for Community Colleges and Occupational Education, Denver. 1985.

Kearns, David T. and Denis P. Doyle Winning the Brain Race: A Bold Plan to Make Our Schools Competitive, SanFrancisco, CA: Institute for Contemporary Studies, 1988.

Kolderie, Ted "Beyond Business-Education Partnerships," in Restructuring Education, Research Report No. 902 for The Conference Board, 1987.

Lettsma, Robert, Robert August, Betty George, and Lois Peak Japanese Education Today. A report to the U.S. Department of Education, January, 1987.

Lendesey, Jacquelyn L., Prince George's County Public Schools, MD. Personal communication, February 22, 1989.

McMullen, Bernard J. and Phyllis Snyder Allies in Education: Schools and Businesses Working Together for At-Risk Youth, Philadelphia, PA: Public/Private Ventures, 1987.

Meyerson, Martin and Robert Zemsky Training Policies: Public and Private Reinforcement for the American Economy. Final report on the impact of public policy on education and training in the private sector. National

Institute of Education, Washington, D.C., 1985.

National Alliance of Business, The Fourth R: Workforce Readiness, Washington, D.C., 1987.

Philippi, Jorie W. "Matching Literacy Skills to Job Training: Some Applications From Military Programs," Journal of Reading, Volume 31, No.7, April, 1988. 658-666.

Philippi, Jorie W. BSEP/CSEP Reading Evaluation: A Study of the Effectiveness of the US Army's Basic Skills/ Career Skills Job-Specific Reading Program. A report to Army Continuing Education Services, USAREUR, Leimen, W.Germany, June, 1987. ERIC Document Reproduction Service No. CS-009190.

Prager, Audrey Education and Work Councils: Programs and Problems. A report to the U.S. Department of Health, Education, and Welfare. National Institute for Education, Washington, D.C., March, 1980.

Public/Private Ventures. Reports by Jorie W. Philippi from planning and conducting job-site literacy task analyses, curriculum development process, and technical assistance provided to Youth Opportunities Unlimited and the Cleveland Public Schools, School to Work Transition Program, November, 1987 through March, 1989.Philadelphia, PA.

Rehn, Gosta and K. Helveg Petersen. Education and Youth Employment in Sweden and Denmark. A study prepared for the Carnegie Council on Policy Studies in Higher Education, 1980.

Rezabek, Dale J. and A.Christine Saul Preparing Californians to Work: A Local Perspective on JTPA and Education Coordination. Sacramento, CA: California State Council on Vocational Education, October, 1986.

Schilit, Henrietta and Richard Lacey The Private Sector Youth Connection: Volume I: School to Work New York: Vocational Foundation, Inc. 1982.

Skagen, Ann (Ed.) Workplace Literacy, An American Management Association briefing, Chapters 2 & 5, 1986.

Sticht, Thomas G. Basic Skills in Defense, HumRRO Professional Paper No. 3-82, Alexandria, VA: Human Resources and Research Organization, 1982.

Timpane, Michael Corporations and Public Education in the Cities, New York Carnegie Corporation, 1982.

U.S. Conference of Mayors, A Status Report on Children in America's Cities, October, 1988.

U.S. Department of Education, The Nation Responds: Recent Efforts to Improve Education, Washington, D.C., 1984.

-- Survey of Post-Secondary Schools with Occupations Programs, National Center for Education Statistics, Washington, D.C., 1984.

-- Education Partnerships in Public Elementary and Secondary Schools, Survey Report No. CS89-060. National Center for Education Statistics, Office of Educational Research and Improvement, February, 1989.

U.S. Department of Education and U.S. Department of Labor, The Bottom Line: Basic Skills in the Workplace, Washington, D.C.: U.S.Government Printing Office, 1988.

Useem, Elizabeth L. LowTech Education in a High Tech World, New York: The Free Press, 1986.

Waddock, Sandra A. Some Criteria for the Successful Development of Public-Private Partnership, Working Paper No. 85-35, Boston, MA: Northeastern University College of Business Administration, 1986.